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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/927,009	08/09/2001	Pankaj Vinubhai Shah	A01098A	4173

7590 03/08/2005

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EXAMINER

GOFF II, JOHN L

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 03/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/927,009

Applicant(s)

SHAH, PANKAJ VINUBHAI

Examiner

John L. Goff

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 11/29/04 and the supplemental amendment filed on 3/2/05 has been entered.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 1 and 3(1) are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobs (U.S. Patent 5,194,487).

Jacobs discloses a method for forming a moisture reactive adhesive, the adhesive capable of being melted (i.e. a hot melt). Jacobs teaches a first step of reacting first components including a high molecular weight polyol (e.g. a polyester polyol) having a molecular weight in the range of 400-6,000, a low molecular weight polyol (e.g. polyester polyol) have a molecular weight less than 400, and a polyisocyanate in an OH:NCO ratio (i.e. isocyanate reactive group to

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isocyanate group ratio) of 1.1-4.1 to form a hydroxyl-functional prepolymer (Column 3, lines 12-68 and Column 4, lines 1-15 and 32-68 and Column 5, lines 1-14 and 41-50 and Column 8, lines 25-33). Jacobs teaches a second step of admixing second components including the prepolymer, additional polyisocyanate, and additional polyol (e.g. polyether polyol), the polyol in amounts of 2 to 20% by weight, in an NCO:OH ratio of 0.8-6 and allowing the admixture to react (Column 2, lines 40-60 and Column 11, lines 24-30 and the Examples). Jacobs teaches using the adhesive in an aqueous dispersion according to the techniques set forth in Markusch (U.S. Patent 4,408,008), e.g. used as a coating that is dried after application to a substrate or used as a bonding agent that is dried after application to a substrate and then thermocompression bonded to an additional substrate (Column 11, lines 34-44 of Jacobs and Column 13, lines 40-60 of Markusch).

Regarding the particular values claimed for the polyol molecular weight, OH:NCO ratio of the first components, weight ratio of prepolymer to additional polyol, and NCO:OH ratio of the second components, the ranges suggested by Jacobs fully encompass or substantially overlap the claimed ranges such that these values appear intrinsic to Jacobs. Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine/optimize these values as a function of the desired end properties of the moisture reactive adhesive produced as doing so would have required nothing more than ordinary skill and routine experimentation.

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4. Claims 2 and 3(2) are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobs as applied to claims 1 and 3(1) above, and further in view of Graham (U.S. Patent 6,365,700).

Jacobs as applied above teaches all of the limitations in claims 2 and 3(2) except for a specific teaching of using crystalline polyester polyol as the polyol of the second components, it being noted Jacobs is not limited to any particular polyol and specifically suggests using polyols including diols such as ethylene glycol, propylene glycol, butanediol, etc. (i.e. diols incorporated into polyester polyols) in addition to a specific suggestion of polyether polyol (Column 2, lines 40-60). It would have been well within the purview of one of ordinary skill in the art at the time the invention was made to use as the polyol of the second components taught by Jacobs a crystalline polyester polyol as both crystalline polyester polyol and polyether polyol were equivalent alternatives in the art as shown for example by Graham and only the expected results would be achieved.

Graham discloses a method for forming a moisture reactive hot melt adhesive (Column 1, lines 21-29). Graham teaches a first step of reacting first components including a polyol (e.g. a polyester polyol) having a molecular weight in the range of 2,000-15,000 and a polyisocyanate in an NCO:OH ratio of 0.7-1.4 to form a hydroxyl-functional prepolymer (Column 1, lines 61-67 and Column 2, lines 7-9, 14-16, 37-39, 44-46, and 49-53). Graham teaches a second step of admixing second components including the prepolymer, additional polyol (e.g. crystalline polyester polyol or polyether polyol) in amounts of 30-60% prepolymer and 5-70% additional polyol, and additional polyisocyanate in an NCO:OH ratio of 1.2-3 and allowing the admixture to react (Column 3, lines 29-34, 38-46, and 51-62). Graham teaches the moisture reactive hot melt adhesive is used to bond a variety of substrates (Column 1, lines 26-29).

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5. Claims 4(1) and 4(2) are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobs as applied to claims 1 and 3(1) above (and Jacobs and Graham as applied to claims 2 and 3(2) above), further in view of Hansel et al. (U.S. Patent 5,162,457), and optionally further taken with Markusch (U.S. Patent 4,408,008).

Jacobs and Graham as applied above teach all of the limitations in claims 4(1) and 4(2) as applied above except for a specific teaching of applying the moisture reactive adhesive as a hot melt and using the moisture reactive adhesive as a bonding agent. As noted above, Jacobs suggest applying the moisture reactive adhesive as an aqueous dispersion. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the moisture reactive adhesive taught by Jacobs (and Jacobs as modified by Graham) as a hot melt as it was preferable in the art to apply adhesives of this type as a hot melt as opposed to an aqueous dispersion to avoid the expense/time associated with drying the aqueous component as shown by Hansel et al. Additionally, as noted above Jacobs teaches using the adhesive in an aqueous dispersion according to the techniques set forth in Markusch (U.S. Patent 4,408,008), e.g. used as a coating that is dried after application to a substrate or used as a bonding agent that is dried after application to a substrate and then thermocompression bonded to an additional substrate, such that using the adhesive taught by Jacobs (and Jacobs as modified by Graham) as a bonding agent appears to be intrinsic. In any event, it would have been well within the purview of one of ordinary skill in the art at the time the invention was made to use the adhesive taught by Jacobs as a moisture curable bonding agent for adhering two substrates as this was a well known and conventional use for compositions of this type as shown for example by Hansel et al. Regarding the specific hot melt temperature, it would have been obvious to one of ordinary skill

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in the art at the time the invention was made to experimentally determine/optimize the hot melt temperature taught by Jacobs as modified by Hansel et al. and optionally Markusch (and Jacobs as modified by Graham, Hansel et al., and optionally Markusch) as a function of the particular adhesive composition as doing so would have required nothing more than ordinary skill and routine experimentation.

Hansel et al. disclose a method for forming a two-component, moisture reactive, isocyanate group containing hot melt adhesive substantially similar to that taught by Jacobs (See abstract). Hansel et al. teach the adhesive is applied as a hot melt rather than as an aqueous dispersion to avoid the expense/time associated with drying the aqueous component (Column 1, lines 9-16). Hansen et al. further teach the adhesive is used as a bonding agent applied as a hot melt and cured through moisture of the atmosphere or from the application of water (Column 5, lines 18-35).

Response to Arguments

6. Applicant's arguments with respect to claims 1-4 have been considered but are moot in view of the new ground(s) of rejection. In view of the preliminary amendment the previous rejections over Graham are withdrawn.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is (571) 272-1216. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

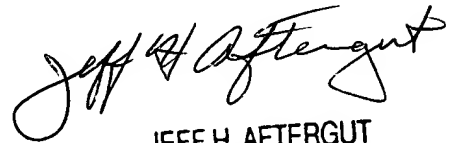
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John L. Goff



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